

other part of the Tree; and by what I have observ'd, seem to contain a more finish'd Juice than the rest, and may well enough be stiled the *Medulla*.

We may note, that when the fourth or innermost Bark C, has once compleated its Sap-Vessels, and is firmly join'd to the Wooden Part, then the third Bark O takes its place for the succeeding Year; and so the rest, except that the first mark'd M, splits and divides its self, to supply the place of the second, as I shall demonstrate hereafter.

Before I conclude, I shall beg leave to recommend the following Enquiry to the Curious, *viz.*

If the several Barks, having different Texture of Parts, admit into each separate and different Juices from the rest: Whether those Juices may not be of very Different Vertues; the first more *Astringent* than the others, the second perhaps *Emetick*; and the third *Cathartick*. This seems to be worth Enquiry.

VI. *Some Microscopical Observations, and Curious Remarks on the Vegetation, and exceeding quick Propagation of Moldiness, on the Substance of a Melon. Communicated by the same.*

I Had lately a large Melon-Fruit, which I split lengthways thro' the Middle, in order to observe the Vessels which compos'd the Membrane or Tunick of each Ovary; but my affairs at that time not permitting me to continue the Work I had began, I lay'd by the one half of the Melon, to be examin'd when I might have more Leisure.

At

At the end of four Days, I found several Spots of Moldiness began to appear on the fleshy Part of the Fruit, somewhat Green towards the Rind; and of a paler Colour towards the Middle of the Fruit. These Spots grew larger every Hour, for the space of five Days; at which time the whole Fruit was quite cover'd.

This surprising Vegetation made me Curious to examine, if there was any difference between those Parts which were Green and the others, besides their Colour. The first being seen with the Microscope, appear'd to be a *Fungus*, (See Fig. 2.) whose Cap was fill'd with little Seeds, to the number of about Five Hundred; which shed themselves in two Minutes after they had been in the Glasses.

The other Sort had many Grass-like Leaves, among which appear'd some Stalks with Fruit on their Top. Each Plant might well enough be compared to a sort of *Bull-Rush*, (Fig. 3.) They had their Seed in great Quantities, which I believe were not longer than three Hours before they began to Vegetate; and it was about six Hours more, before the Plants were wholly perfected: for, about seven of the Clock one Morning, I found three Plants at some Distance from any others; and about four the same Day, I could discern above Five Hundred more growing in a Cluster with them, which I supposed were Seedling-Plants of that day. The Seed of all these were then Ripe and Falling.

When the whole Fruit had been thus cover'd with Mold for six Days, this Vegetable Quality began to abate, and was entirely gone in two Days more. Then was the Fruit putrified, and its fleshy Parts now yielded no more than a stinking Water, which began to have a gentle motion on its Surface, that continued for two Days without any other Appearance. I found then several small Maggots (Fig. 4.) to move in it, which
grew

grew for the space of six Days; after which they laid themselves up in their Bags. Thus they remain'd for two Days more without Motion, and then came forth in the Shape of Flies. (Fig. 5.) The Water at that time was all gone, and there remain'd no more of the Fruit than the Seeds, the Vessels which compos'd the Tunicks of the Ovarys, the outward Rind, and the Excrement of the Maggots; all which together weigh'd about an Ounce. So that there was lost of the first weight of the Fruit when it was cut, above twenty Ounces.

We may Judge from this, and other Cases of the like nature, how much Vegetable Life is dependent on Fermentation, and Animal Life on Putrification.

VII. *The Art of Living under Water: Or, a Discourse concerning the Means of furnishing Air at the Bottom of the Sea, in any ordinary Depths.*
By Edm. Halley, LL. D. Secretary to the Royal Society.

There have been many Methods propos'd, and Engines contriv'd, for enabling *Men* to abide a competent while under *Water*: And the Respiring fresh *Air* being found to be absolutely necessary to maintain Life in all that breath, several ways have been thought of, for carrying this *Pabulum Vita* down to the *Diver*, who must, without being somehow supplied therewith, return very soon, or perish.

We have heard of the *Divers* for Sponges in the *Archipelago*, helping themselves by carrying down *Sponges* dipt in Oyl in their Mouths: but considering how small a Quantity of *Air* can be suppos'd to be contained in

Fig. 1.

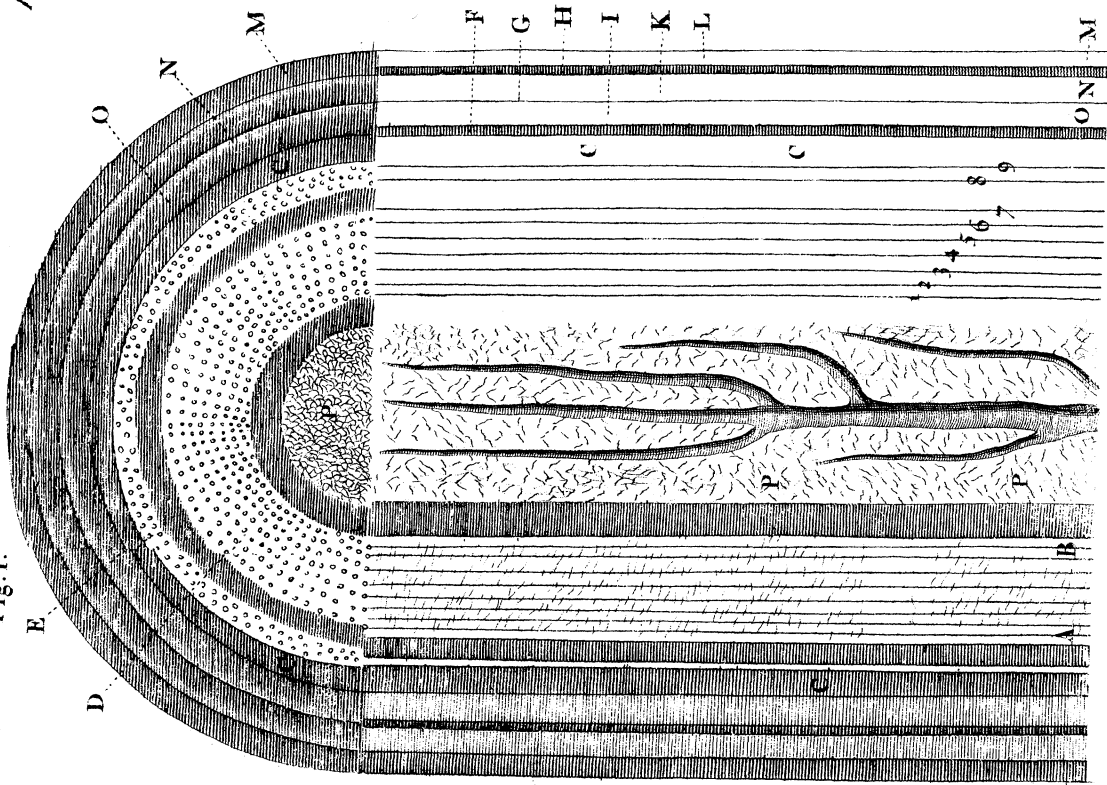


Fig. 2.

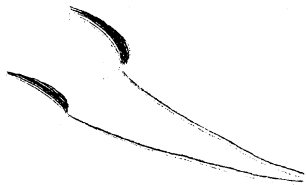


Fig. 3.



Fig. 4.



Fig. 5.

